CLAIMS

1. An AC voltage generating apparatus, comprising:

first and second three-phase coils (11, 12);

a first current supplying circuit allowing a first AC current having a prescribed frequency to pass through said first three-phase coil;

a second current supplying circuit allowing a second AC current having said prescribed frequency and a phase being inverted relative to a phase of said first AC current to pass through said second three-phase coil; and

a voltage converter (50) connected between a first neutral point (M1) of said first three-phase coil (11) and a second neutral point (M2) of said second three-phase coil (12) for converting an AC voltage generated between said first neutral point (M1) and said second neutral point (M2) to output an AC voltage having said prescribed frequency.

2. The AC voltage generating apparatus according to claim 1, wherein

said first current supplying circuit includes

a first inverter (30) connected to said first three-phase coil (11), and

first control means (72) for controlling said first inverter (30) to allow said first AC current to pass through said first three-phase coil (11), and wherein

said second current supplying circuit includes

a second inverter (40) connected to said second three-phase coil (12), and

second control means (73) for controlling said second inverter (40) to allow said second AC current to pass through said second three-phase coil (12).

3. The AC voltage generating apparatus according to claim 2, wherein

said prescribed frequency is determined by a switching frequency in said first and second inverters (30, 40).

4. The AC voltage generating apparatus according to claim 3, wherein

said first three-phase coil (11) is formed of first to third coils,

said second three-phase coil (12) is formed of fourth to sixth coils,

said first inverter (30) includes first to third arms (31, 32, 33) provided corresponding to said first to third coils,

said second inverter (40) includes fourth to sixth arms (41, 42, 43) provided corresponding to said fourth to sixth coils,

said first control means (72) switching-controls at least one of said first to third arms (31, 32, 33) at said prescribed frequency to allow a first in-phase AC current to pass through at least one of said first to third coils, and

said second control means (73) switching-controls at least one of said fourth to sixth arms (41, 42, 43) at said prescribed frequency to allow a second in-phase AC current having a phase being inverted relative to a phase of said first in-phase AC current to pass through at least one of said fourth to sixth coils.

5. The AC voltage generating apparatus according to claim 3, wherein

said first three-phase coil (11) is formed of first to third coils,

said second three-phase coil (12) is formed of fourth to sixth coils,

said first inverter (30) includes first to third arms (31, 32, 33) provided corresponding to said first to third coils,

said second inverter (40) includes fourth to sixth arms (41, 42, 43) provided corresponding to said fourth to sixth coils,

said first control means (72) controls said first inverter (30) to convert an AC voltage generated by said first to third coils to a DC voltage,

said second control means (73) switching-controls at least one of said fourth to sixth arms (41, 42, 43) to allow an in-phase AC current having a phase being inverted relative to a phase of an AC current generated by said first to third coils to pass through

at least one of said fourth to sixth coils.

6. The AC voltage generating apparatus according to claim 2, wherein said prescribed frequency is determined by a frequency at which a duty for switching-controlling said first and second inverters (30, 40) is changed.

7. The AC voltage generating apparatus according to claim 6, wherein said first three-phase coil (11) is formed of first to third coils,

said second three-phase coil (12) is formed of fourth to sixth coils,

said first inverter (30) includes first to third arms (31, 32, 33) provided corresponding to said first to third coils,

said second inverter (40) includes fourth to sixth arms (41, 42, 43) provided corresponding to said fourth to sixth coils,

said first control means (72) switching-controls said first to third arms (31, 32, 33) by changing a first duty of said first to third arms (31, 32, 33) according to a first curve that changes at said prescribed frequency, and

said second control means (73) switching-controls said fourth to sixth arms (41, 42, 43) by changing a second duty of said fourth to sixth arms (41, 42, 43) according to a second curve that has a phase being inverted relative to a phase of said first curve.

8. A motive power outputting apparatus, comprising:

a first motor generator (MG1) including a first three-phase coil (11) as a stator coil;

a second motor generator (MG2) including a second three-phase coil (12) as a stator coil;

a first inverter (30) connected to said first three-phase coil (11);

a second inverter (40) connected to said second three-phase coil (12);

first control means (72) for controlling said first inverter (30) to allow a first AC

current having a prescribed frequency to pass through said first three-phase coil (11);

second control means (73) for controlling said second inverter (40) to allow a second AC current having a phase being inverted relative to a phase of said first AC current to pass through said second three-phase coil (12); and

a voltage converter (50) connected between a first neutral point (M1) of said first three-phase coil (11) and a second neutral point (M2) of said second three-phase coil (12) for converting an AC voltage generated between said first neutral point (M1) and said second neutral point (M2) to output an AC voltage having said prescribed frequency.

9. The motive power outputting apparatus according to claim 8, wherein

said prescribed frequency is determined by a switching frequency in said first and second inverters (30, 40).

10. The motive power outputting apparatus according to claim 9, wherein

said first three-phase coil (11) is formed of first to third coils,

said second three-phase coil (12) is formed of fourth to sixth coils,

said first inverter (30) includes first to third arms (31, 32, 33) provided corresponding to said first to third coils,

said second inverter (40) includes fourth to sixth arms (41, 42, 43) provided corresponding to said fourth to sixth coils,

when said first and second motor generators (MG1, MG2) are stopped,

said first control means (72) switching-controls at least one of said first to third arms (31, 32, 33) at said prescribed frequency to allow a first in-phase AC current to pass through at least one of said first to third coils, and

said second control means (73) switching-controls at least one of said fourth to sixth arms (41, 42, 43) at said prescribed frequency to allow a second in-phase AC current having a phase being inverted relative to a phase of said first in-phase AC

current to pass through at least one of said fourth to sixth coils.

11. The motive power outputting apparatus according to claim 9, wherein

said first three-phase coil (11) is formed of first to third coils,

said second three-phase coil (12) is formed of fourth to sixth coils,

said first inverter (30) includes first to third arms (31, 32, 33) provided corresponding to said first to third coils,

said second inverter (40) includes fourth to sixth arms (41, 42, 43) provided corresponding to said fourth to sixth coils,

in a regenerative mode of said first motor generator (MG1),

said first control means (72) controls said first inverter (30) to convert an AC voltage generated by said first to third coils to a DC voltage, and

said second control means (73) switching-controls at least one of said fourth to sixth arms (41, 42, 43) to allow an in-phase AC current having a phase being inverted relative to a phase of an AC current generated by said first to third coils to pass through at least one of said fourth to sixth coils.

12. The motive power outputting apparatus according to claim 8, wherein

said prescribed frequency is determined by a frequency at which a duty for switching-controlling said first and second inverters (30, 40) is changed.

13. The motive power outputting apparatus according to claim 12, wherein

said first three-phase coil (11) is formed of first to third coils,

said second three-phase coil (12) is formed of fourth to sixth coils,

said first inverter (30) includes first to third arms (31, 32, 33) provided corresponding to said first to third coils,

said second inverter (40) includes fourth to sixth arms (41, 42, 43) provided corresponding to said fourth to sixth coils,

in a powering mode of said first and second motor generators (MG1, MG2),

said first control means (72) switching-controls said first to third arms (31, 32, 33) by changing a first duty of said first to third arms (31, 32, 33) according to a first curve that changes at said prescribed frequency, and

said second control means (73) switching-controls said fourth to sixth arms (41, 42, 43) by changing a second duty of said fourth to sixth arms (41, 42, 43) according to a second curve that has a phase being inverted relative to a phase of said first curve.

14. The motive power outputting apparatus according to claim 13, wherein

said first motor generator (MG1) is coupled to an internal combustion engine of a vehicle, and

said second motor generator (MG2) is coupled to a driving wheel of said vehicle.

15. The motive power outputting apparatus according to claim 13, wherein

each of said first and second motor generators (MG1, MG2) is coupled to a driving wheel of a vehicle.